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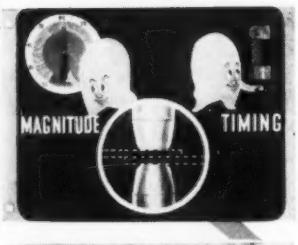
Electrical World

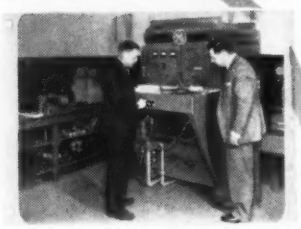
NEWS ISSUE OCTOBER 19, 1946

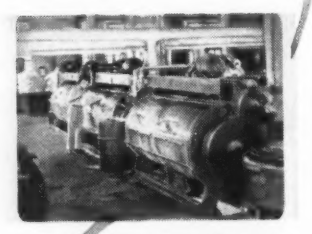
William G. Hills, New President of the International Association of Electrical Leagues

McGRAW-HILL PUBLICATION

MORE POWER to AMERICA wins favor fast.... with the help of these 5 selling tools







Put these selling tools to work. You will find them excellent builders of both load and goodwill.

Resistance Welding Program. A 30-min., 16-mm, full-color sound motion picture, "This Is Resistance Welding," takes you inside 15 industrial plants, and shows how resistance welding is reducing costs and increasing production.

Electronic Induction Heating Program. A 35-mm talking slidefilm, "Electronics Broadens the Use of Induction Heating," explains the fundamentals of electronic induction heating and its advantages in brazing, soldering, annealing and hardening, and shows induction heaters in action.

Laundry Electrification Program. A 35-mm, talking slidefilm, "On One Condition," presents a story of a typical laundry owner who climbed on to the profit side of the ledger by making his plant electrically fit. The American Institute of Laundering, and leading laundry-machinery manufacturers, aided in the film's production.

Sewage Treatment Program. A 25-min., 16-mm, full-color sound motion picture, "Clean Waters," portrays to the general public the dangers from pollution of surface waters and shows how modern sewage treatment solves the problem with the proper application of electrical equipment. Produced with the co-operation of U. S. Public Health Service.

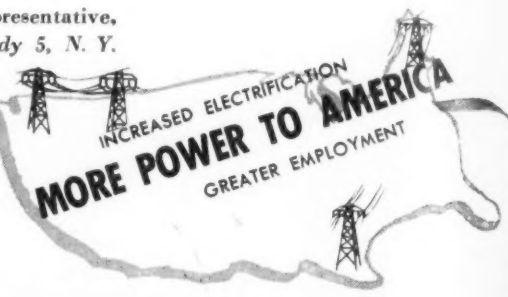
Industrial Electronics Training Course. This course is designed to give a thorough understanding of electronics to engineering and production personnel. The course consists of: 12 talking slidefilms; 25 copies each of 12 review booklets, keyed to the 12 slidefilms; a manual to help you present the lectures in the best way.

To encourage widespread use these five programs, booklets, and manuals are made available to you at the cost of producing additional copies.

A sales manual explaining how to best use the film, and a booklet for distribution to power users after showing the film are included in each of the above programs.

For additional information and prices, talk to your local G-E representative, or write *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

A DEFINITION—***An organized program for applying, most effectively, the co-ordinated efforts of all interested groups to increase the efficient use of electricity in industry and agriculture, with emphasis on those processes and operations least electrified.***



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ELECTRICAL WORLD

NEWS ISSUE

VOLUME 126 NUMBER 16

OCTOBER 19, 1946

Sabotage Jumps at Duquesne; Striking Union Wins Election

Rifle Shots Put 66-Kv. Transformer at Colfax Station Out of Service—Mueller's Union Easy Victor in NLRB Election —Bargaining Still at Standstill — Limited Service Offered

INCREASINGLY serious and effective sabotage of the Duquesne Light Co. system and a conclusive defeat of attempts by other unions to take over the biggest section of the striking independent Duquesne union marked the opening of the fourth week of Pittsburgh's electric power strike.

Developments as the strike reached its 23rd day, Wednesday, were:

1. Sabotage by rifle fire of a 66-kv. oil-cooled transformer at the Colfax generating station.

2. A 958 to 261 victory for the Duquesne independent union, headed by George Mueller, over District 50 of the United Mine Workers in a National Labor Relations Board election to determine which of four unions should represent hourly workers of the Duquesne Light Co.

3. The continued ability of Duquesne Light to meet ever heavier loads despite the length of the strike and its inability to augment crews operating its four generating stations. A new system strike peak of 278,000 kw., well over 50 percent of normal for that period, was established at 7 p.m., October 14, surpassing the strike peak by 31,000 kw.

4. Continued collapse of bargaining aimed at ending the strike.

5. Partial disruption of the limited service the company had maintained, because of sabotage and increased use by consumers.

The Colfax sabotage, effected early October 15 when an unknown person fired two 30-30 rifle bullets into a $60,000 transformer, piercing its oil tank and cracking a porcelain bushing, caused considerable load dropping and juggling for about six hours after the transformer overheated at 6:27 a.m. and began to burn. It was one of three transformers in a bank and was carrying 40,000 kw., at the time of its failure, which load had to be dropped temporarily. Numerous customers experienced 10- to 15-minute outages while system operators juggled circuits. Later that morning, a total of nine substations had to be cut off in small groups for intervals ranging from 8 to 17 minutes, company officials said. At one time, about half of downtown Pittsburgh was cut off for 11 minutes.

By noon, October 15, the day of this sabotage, load dumping was ended and had not had to be resumed as this was written. Company spokesmen said the temporary outages had a salutary effect upon customers, who had been easing up on their conservation efforts to a point at which the system had been strained the night before the shooting. At the time, emergency announcements regarding the possibility of forced outages had been issued by the company. By mid-afternoon on the day of the shooting, the other two transformers in the bank which had been fired at were restored to service with an open-delta connection which enabled the company to use them only at 50 percent capacity. The sabotaged transformer, officials said, would require complete rebuilding and will be out of service for several months.

The shooting was the third known incident of sabotage against the Duquesne system in three weeks, and the most serious. On the preceding Friday, marauders entered an unattended substation at Brentwood and drained oil from two 2,000-kva. transformers, resulting in overheating and a short outage for 8,000 customers. Fuses operated in time to keep the coils from being damaged. During the short time the transformers were out of service, pole-top switching enabled the use of other circuits and a rapid restoration of service.

Striker Found Hiding in Plant

The first sabotage incident occurred some time before when a rope was thrown over a 22-kv. feeder in the Clairton-Wilson District and caused a short circuit which resulted in a 40-minute outage for 18,000 customers. A striker was found hiding in the Colfax station coal hoist October 11. He was arrested and released on bail.

Company officials indicated that "a textbook on power system sabotage is being written in Pittsburgh," as attempts continued. Full publicity was given them by the company, as a matter of policy.

Generating plants and attended substations were guarded by city and county peace officers, but no protection was available for lines or automatic substations.

Meanwhile, Mueller, the union's stormy petrel leader, hailed the sweeping victory his independent union

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scored in this week's NLRB election, and asserted that:

"We have regarded the whole matter of the election as a strike breaking affair instigated by the company."

While a second group of insurgents had voted to accept the arbitration offered by the company more than a month ago, and had telegraphed Labor Secretary Schwellenbach, Mueller, and Duquesne president Pressly McCance to appoint their arbitrators, Mueller's substantial victory this week seemed a conclusive indication that the independent union has not been brought to its knees. The election was won, additionally, as street car and bus service, on a limited scale, were resumed for the first time in more than two weeks after A.F.L. operators voted to cross the independent union picket lines and operate their vehicles. This defection of rank and file union support did not hurt the independent union as its largest section voted early this week.

On the NLRB ballot with the independent union were four other choices, District 50 of the United Mine Workers, A.F.L., which granted haven to disaffected independent union members in their attempt to break away from Mueller; the International Brotherhood of Electrical Workers, A.F.L.; the Utility Workers Union, C.I.O., and a "no union." District 50, whose efforts brought the election after a hearing last week, polled 261 votes of the 1,442 cast. I.B.E.W. got 116; U.W.U. got 80, and only 11 voted "no union." Of the 1,728 eligibles, 286 did not vote, six ballots were declared void and 10 were challenged.

Street Lighting Darkened

Effects of the strike were noticed most heavily downtown, where all street lights were out. There, and in the East Liberty business section, the company had 600 carbon-arc lamps, normally serviced every two weeks. All these lamps were out. Elsewhere in the area, perhaps 2,000 of 39,400 incandescent lamps were out, but they were so scattered as not to have much effect. Downtown, some street lighting was had after the company asked theaters and business houses to use their marquee and window lighting wherever possible.

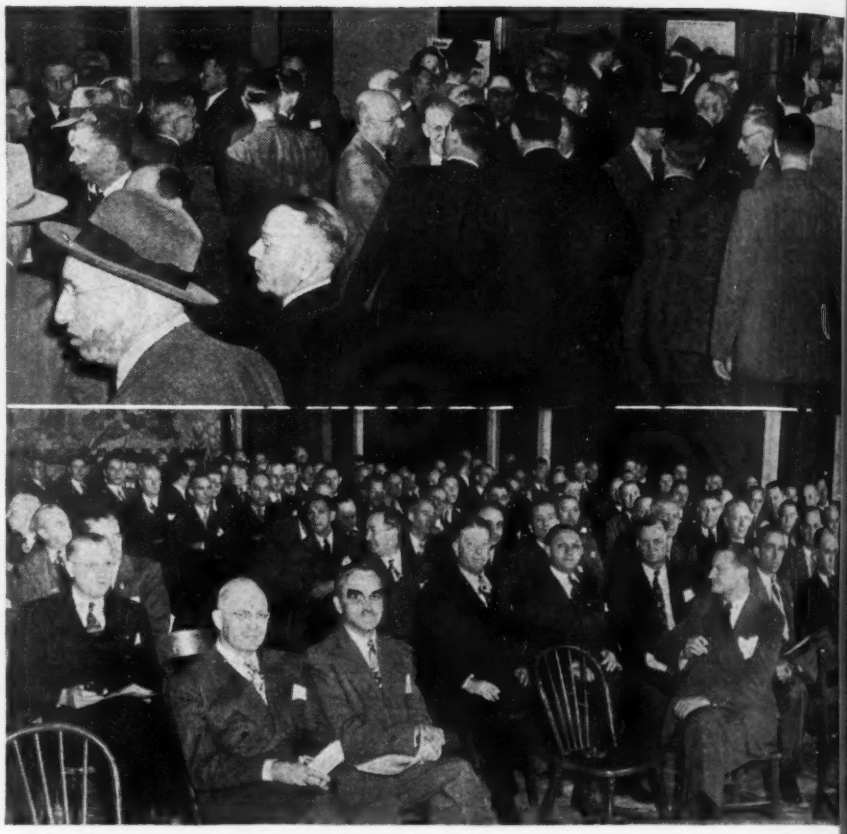
Company officials reported they were able to carry out the most essential distribution maintenance, of which there had not been any unusual amount. In Mount Washington, across the Monongahela River from the Golden Triangle, when a high wind short-circuited lines serving 800 customers, service to all but 300 was restored quickly; but it was several days before the company could muster a crew sufficiently large to handle the biggest part of the job. There was no union interference with the repair crews, company officials said.

Restoration of limited street car service added about 12,000 kw. to the system load, company officials said. As many as 200 were operating in off-peak hours, which provided service at about 50 percent of noonday levels and 25 percent of peak levels.

Meanwhile, coal continued to flow into the system's four generating plants, and morale of the supervisory force operating them continued to be "very good," company officials said.

Hourly load figures for October 8 through October 15 in thousands of kilowatts follow:

Time	Oct. 8	9	10	11	12	13	14	15
7 A.M.	135	148	147	147	140	113	147	192
8	146	158	163	160	152	120	169	201
9	187	190	190	191	177	133	212	226
10	204	210	209	195	199	141	230	235
11	206	213	204	206	206	142	246	235
Noon	189	194	192	192	208	143	220	221
1	196	206	196	191	205	143	229	218
2	198	213	208	203	197	143	229	223
3	196	217	200	195	198	143	229	220
4	190	211	196	208	191	139	220	219
5	189	209	189	207	207	144	218	208
6	209	218	211	225	223	194	262	249
7	240	247	241	240	246	219	278	266
8	233	242	237	232	240	208	274	257
9	232	232	224	223	219	208	267	246
10	213	211	216	209	211	201	250	233
11	186	186	189	189	194	181	221	210
12	171	176	174	188	171	163	209	194



ENGINEERS GET TOGETHER—Top panel, some of the 300 engineers who attended the Inter-Company Engineering Conference of the Commonwealth Edison Group of Companies, October 3–4, at Lake Delavan, Wis., congregate in the lobby before the session, bottom panel, at which Lee H. Hill, at left in front row, publisher of ELECTRICAL WORLD, spoke on the "Engineer as a Manager"

Engineering Meeting Held by Commonwealth Edison

With two featured speakers on the program, Lee H. Hill, publisher of ELECTRICAL WORLD, and Virgil Gunlock, commissioner of subways and superhighways, City of Chicago, the Inter-Company Engineering Conference of the Commonwealth Edison Group of Companies held its third annual two-day conference, October 3-4, at Lake Delavan, Wis. Attendance at the conference was over 300.

More than 30 engineers took part in six round-table sessions on these topics: "Phases of Power Plant Construction," "Generator Operation at High Power Factor," "Insulated Flashovers," "Generating Station Problems," "Increased Loading of Electrical Plant," and "Maintenance of Overhead Lines."

Mr. Hill spoke on "The Engineer as a Manager," and Mr. Gunlock on "Superhighways for the Machine Age."

Officers of the conference are H. E. Wulfing and T. G. LeClair, Commonwealth Edison Co., chairman and vice-chairman; and I. L. Wade, Public Service Co. of Northern Illinois, secretary.

Supreme Court Consideration Sought in Many Utility Cases

Failure of Chief Justice Vinson to Decide His Eligibility Will Delay Hearings on 2 Important Cases under Public Utility Holding Company Act at Least until November 12

STILL another obstacle to final disposition of utility appeals from the provisions of Section 11 (b) (1) of the Public Utility Holding Company Act of 1935 arose this week as the Supreme Court opened its 1946 term.

Arguments on Constitutionality of Section 11 (b) (2), the "death sentence" clause, proceeded, however, despite last-minute requests for a postponement.

Delay in argument of the 11 (b) (1) cases—Engineers Public Service Co. vs. SEC, and SEC vs. Engineers—arose when Chief Justice Fred Vinson was unable to determine whether he is qualified to sit. Vinson was a member of the District of Columbia Court of Appeals when the two 11 (b) (1) cases were argued first. No decision was rendered, but the cases were set down for re-argument. Vinson did not hear the re-argument nor did he participate in the decision now under appeal. As a result of his failure to decide on his eligibility, the two cases will not be heard before November 12, Court attaches told ELECTRICAL WORLD, and will be heard thereafter only if Vinson decides himself eligible. Three other members of the Court, whose identity has never been disclosed, have disqualified themselves.

Quorum Lacking For 3 Years

With Vinson undecided, no quorum can be obtained to hear the two cases. Both were decided late in 1943 but have languished before the High Court for almost three years through inability to obtain a quorum. They were heard last fall, but Chief Justice Stone died before decisions were rendered, necessitating re-argument this term.

The two 11 (b) (2) cases—American Power & Light Co. vs. SEC and Electric Power & Light Co. vs. SEC—were re-argued on schedule early this week after the Court denied a motion to postpone re-argument pending decision by SEC on dissolution plans laid before the commission by Electric Power & Light and American Power & Light. The motion followed an offer by E. P. & L. to withdraw its Supreme Court appeal if part of its dissolution plan were to be approved by SEC. It was believed that American was ready to do likewise.

The Federal Power Commission had an appeal before the High Court from a recent decision of the District of Columbia Appeals Court which ordered the District Court to reconsider a case brought by the Arkansas Power & Light Co. against FPC in an effort to determine whether FPC or the Arkansas Public Service Commission has final jurisdiction over its accounts. The District Court had ruled for FPC, but was reversed, leading FPC to file the High Court appeal.

The case grew out of differences of opinion between the Federal and Arkansas Commissions over proper accounting. Under a State Commission order which stipulated one set of accounts, and facing a varying FPC order, A. P. & L. sought a declaratory judgment to determine which agency had final jurisdiction.

FPC's specifications of error on the part of the Circuit Court were largely technical and mainly of interest to attorneys concerned with the Federal Declaratory Judgment Act, although one of them did allege error on the part of the Circuit Court for failing to limit any review to that provided for in Section 313 (b) of the Federal Power Act. Early this week, the Court had not ruled on whether or not it would hear the case.

Three additional cases brought by Samuel Okin, an active minority stockholder of the Electric Bond & Share System, were also before the Court, which had not ruled early this week on whether it would hear them.

As in actions which he lost last term, Okin seeks to upset SEC approval of a transaction between E. B. & S. and its subsidiary, American & Foreign Power Co., involving a $35,000,000 indebtedness owed by the latter. The debt was refinanced by E. B. & S. with a reduction of 4 percent in interest. SEC conditioned its approval of the plan to provide that none of the debt be retired by American without specific SEC approval and to provide additonally that rank and status of the debt be not changed until finally determined by SEC. Okin held this to be tantamount to an injunction by SEC, which he argued is beyond SEC's authority.

FPC Rate Order Contested

A fourth case which the Court had not decided to hear or not to hear early this week is that of Cities Service Gas Co. vs. FPC. The company seeks to overturn a 10th Circuit Court of Appeals ruling upholding a final FPC rate order directing a reduction of $4,445,871 from the company's 1941 revenues.

Appeals in two utility cases were rejected at the end of the first week of the session. These were the Arkansas Natural Gas Corp. vs. SEC, and three cases involving the Columbia Gas & Electric Corp. vs. U. S.

The Columbia cases grew out of the investment by Columbia of more than $3,200,000 in securities of two operating utilities and their holding company, all of which went into bankruptcy. Trustees charged that Columbia violated the anti-trust laws in acquiring its interests and urged that Columbia's claims to the assets be subordinated. Two lower courts agreed, resulting in Columbia's appeal for a High Court review, which was denied.

The Arkansas case, review of which was also denied, grew out of an SEC order that the company divest itself of certain petroleum holdings which SEC ruled were not functionally related to its natural gas utility operations. The company argued that functional relationship between utility and non-utility operations was not necessary if it could be demonstrated in the interest of the investor, the consumer, or the public to continue the combined operations.

HANGING — A revolt against the Bonneville Power Administration and the Central Lincoln County P.U.D. led to this "hanging" in Florence, Ore., of BPA officials. The revolt arose over power shortages which Dr. Paul Raver, of BPA, announced would be eased this month when the new Albany-Toledo line is energized

Bargaining between VEPCO and Foremen at Standstill

Negotiations between the Virginia Electric & Power Co. and a disaffected group of its foremen were at a standstill early this week according to company officials.

The foremen have notified the Labor Department in Washington of their intention to strike on or after October 31 because of VEPCO's alleged refusal to recognize International Brotherhood of Electrical Workers, A.F.L., as bargaining agency for "certain categories of foremen."

Gov. William M. Tuck of Virginia, who received a copy of the strike notice from the union and promptly announced that he would "use all the powers" of his office to avert a strike of VEPCO employees, had taken no further steps toward entering the dispute as this was written, company officials said. Last February, Governor Tuck, exercising authority under an almost-forgotten state law, drafted into the militia organized VEPCO employees who were threatening to strike in a dispute over their annual contract with the company.

Thomas B. Morton, resident commissioner of the U. S. Conciliation Service at Richmond, has been assigned to the dispute, it has been announced in Washington. Conciliation Service sources, however, refused to comment upon his activities.

The Richmond foremen's local, which filed the strike notice, charged that VEPCO has refused to deal with their unit despite the fact that "such organization has been duly certified by the National Labor Relations Board" as their bargaining agent. Some 2,000 other I.B.E.W. employees of the company are working under a contract which terminates next February. However, I.B.E.W. leaders predicted that these organized workers probably would call a sympathy walkout if the foremen's strike is called. This possibility was not considered pressing.

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E. A. Lewis Dies

E. A. Lewis, vice-president and general manager of the Ohio Power Co., Canton, Ohio, died on October 16. Almost his entire business career, embracing a period of 43 years, has been spent in the public utility field. Before going to Ohio as vice-president and general manager of the Canton properties, Mr. Lewis occupied the same position with the Indiana & Michigan Electric Co., South Bend.

Chattanooga Times

HEAT PUMP INSTALLATION — As the first step in installing a Marvair heat pump, workman drills a 218-ft. deep well. This Chattanooga, Tenn., home will have a 60,000-Btu. output heat pump powered by a 3-hp. motor. This is one of a number of test installations throughout the country

Floater 'Resistance' Sold to New Hampshire Utility

The "Resistance," third of the 30,000-kw. floating power plants built for war service, has been sold to the Public Service Co. of New Hampshire for $2,575,000, the War Assets Administration announced this week.

Four foreign countries and seven U. S. utility systems sought the floater, among them New Hampshire, which wanted it to replace the "Jacona," a 20,000-kw. floater commandeered two years ago for war service. WAA officials disclosed that the sale to New Hampshire was aimed primarily at wiping out a $4,100,000 claim against the U. S. by the company in settlement of damages incurred when the "Jacona" was taken.

It was agreed that Maritime Commission would pay New Hampshire $1,625,000 in settlement of the "Jacona" claim which, with an additional $950,000, would be turned over to WAA.

Iowa Utility May Operate New System for 9 Co-ops

Nine Iowa electric cooperatives are planning the construction of electric generating and transmission facilities which would be operated by the Iowa Electric Light & Power Co. The co-ops trification Administration loan to finance the project.
will file application for a Rural Elec-

Decision to build their own facilities was made by the co-ops after extended negotiations with the company to obtain increased energy supplies. REA representatives are reported to have joined in these conferences. The co-ops have instituted steps to organize legally an ownership organization and expect to file their loan application as soon as this move is completed.

Amount of the loan to be sought is reported approximately $5,000,000 with present plans calling for the construction of one steam-electric generating plant with capacity of 20,000 or 35,000 kw. Another steam station may be erected later. The output of these plants would be integrated with the private company system, the company undertaking to serve the owner cooperatives through existing connections and over the contemplated transmission lines.

Details of the construction plans still are being worked out by engineers of the co-ops, the company, and REA. Because of the active participation of the lending agency in these and earlier negotiations, it is believed that REA will consider the final plans favorably.

Edgar D. Beach, general manager of the Maquoketa Valley Rural Electric Cooperative, Anamosa, Iowa, is directing the negotiations on behalf of the cooperatives.

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Crowley Successor Named

George R. Armstrong, general superintendent of Louisville Gas & Electric Co., has been elected a director of the utility to replace Leo T. Crowley, president of Standard Gas & Electric Co., Chicago, who was barred by the Federal Power Commission from holding such office (ELECTRICAL WORLD, June 29, Page 9).

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Army Closes Office

The Army Corps of Engineers will close its Middle Atlantic Division office in Baltimore on November 1 and will merge its functions with that of the New York office in the interests of "organizational economy."

Timber Shortage, Hardware Corrosion Problems Studied

E.E.I. Transmission and Distribution Group Hears Report on Fir Crossarm Tests—Importance of Zinc Coating Specs Stressed—Other Engineering Developments Are Considered

PROBLEMS arising from the timber shortage, from corrosion of hardware and cable sheaths, from galloping conductors, and from inrush currents after feeder interruptions were prominent themes at a meeting of the Edison Electric Institute Transmission and Distribution Committee at Virginia Beach on October 7 and 8. Comparable discussion was devoted to programs of mutual assistance in utility emergencies and to prosecution of standardization activities. Attendance at the sessions was 120.

Importance of the timber issue was stressed by F. A. Ashbaugh, West Penn Power Co., because of the prevailing stringency and because it constitutes some 40 percent of investment in transmission and distribution. L. J. Jacobi, Detroit Edison Co., reported on tests of 54 fir crossarms that had been rejected by inspectors and eight that had passed inspection, including so-called structural grade arms. As a general rule the knots were the cause of failure. All but two failures occurred between brace holes and, therefore, defects there should be thoroughly analyzed.

Other conclusions advanced were (1) that slope of grain is important but local deviation in the center section is most important, (2) percentage of summerwood is more important than number of rings, and (3) checks are not too important unless they are such as to expedite decay (in untreated arms).

Zinc Coating Specs Stressed

Zinc coating specifications were stressed by E. H. Kendall, Consumers Power Co., as important because current economic factors put, more than ever, emphasis on long-life, low-maintenance installations. Hand-drawn dipping produces a substantially heavier coating than centrifuging, the latter removing 25 to 30 percent of the dip-deposit. Tests show that the desired 2-oz. coating can be achieved in regular production if the work is hand drawn.

Cable sheath corrosion occupied a symposium opened by Robert Pope of Bell Telephone Laboratories, who outlined the evolution of the trans-continental buried cable which affords protection against lightning and gophers as well as corrosion. Merits of magnesium as a galvanic anode were cited by R. L. Featherly, Dow Chemical Co., as being (1) high anodic potential, (2) 500 to 600 amp.-hr. output per lb., and (3) practical absence of polarization.

W. A. Del Mar, Habirshaw Cable Division, Phelps Dodge Copper Products Co., expects polyethylene and vinyl plastics to be useful in protecting cable sheaths. A new rubber-like cable dielectric in the form of butylpolyethylene (Type AB) was announced by L. F. Hickernell, Anaconda Copper Co., as combining the electrical and physical superiorities of the constituents.

Comprehensive arrangements for mutual assistance and effective collaboration in emergencies as negotiated between the United Illuminating Co. and The Southern New England Telephone Co., were detailed by W. A. Upham, United Illuminating.

Extending the paper in ELECTRICAL WORLD of September 29, 1945, L. M. Olmsted presented further Duquesne Light data in support of the tentative conclusion that automatic sectionalization of feeders will be requisite to resumption after sustained outage on circuits with sizable motor-load proportions. J. W. Anderson, Philadelphia Electric Co., presented additional data on the amount of single and 3-phase motor load that can be carried on typical transformers and secondaries without exceeding a 4-volt flicker limit on starting.

Techniques for maintaining air-break switches by bypassing and use of live-line tools were offered by L. M. Olmsted and F. M. Fuller, Pennsylvania Power & Light Co.

Renewed interest in galloping conductors was evidenced by the announcement by M. S. Oldacre, U.R.C., that a group of utilities is planning to explore the theories and data and to conduct field tests. A. E. Davison of Toronto was commended for his researches and bibliography contributions.

Pleas were made by both A. E. Silver, Ebasco Services, and F. W. Nimmer, Ohio Edison Co., in reporting on progress in deliberation with the telephone representatives, that joint-use rural lines and carrier telephone over rural power lines be applied wherever feasible. It was stated that 500 carrier sets are now being produced weekly.

REA WELCOME — Claude Wickard, administrator of the Rural Electrification Administration, opened the safety conference held recently in Washington for REA leaders

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FPC Refuses to Postpone Hearing on Clark Hill Dam

The Federal Power Commission this week refused to postpone the hearing set for October 28, on the application of the Savannah River Electric Co. for authority to build the Clark Hill dam and power plant on the Savannah River near Augusta, Ga.

In denying a motion made by the company, the Commission said that it would not be in the public interest to grant the postponement.

In its original application to FPC, Savannah River Electric, a subsidiary of the Georgia Power Co., proposed construction of a $45,000,000 multiple-purpose project at the Clark Hill site, where the Army Engineers have started engineering work on a similar development.

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Island Getting New Plant

Tangier Island in Chesapeake Bay will replace its antiquated d.c. plant which serves only one-third of the homes on the island for six hours daily with an a.c. plant which can supply all the electricity needed. The residents have raised most of the money and have secured a generator and other supplies from the War Assets Administration.

NEWS ABOUT PEOPLE

John Fritz Medal Awarded to Dr. Lewis W. Chubb

The John Fritz Medal and certificate have been awarded to Dr. Lewis W. Chubb, director of the Westinghouse Research Laboratories, "for pioneering genius and notable achievements during a long career devoted to the scientific advancement of the production and utilization of electrical energy." The award is made by the four national engineering societies.

Dr. Chubb's contributions to the knowledge of magnetic properties of iron and iron alloys, and his improvements in the design of electrical machinery and in the measurements of electrical and magnetic quantities, have had great influence in the development of the electric arts during the past 30 years.

L. W. CHUBB

Following graduation from Ohio State University in 1905, Dr. Chubb enrolled in the apprenticeship course at Westinghouse and after completing the course was assigned to the standards laboratory in the engineering department. In 1907 he joined the research division where a large part of his time was devoted to improving the quality and application of magnetic steel and by 1916 he was head of all electro-technical developments for the company. In 1920 he was appointed manager of the newly formed radio engineering department, the position he held until 1930. In those years he contributed scores of ideas to the development of radio and electronic tubes. It was in 1930 that he became director of the Westinghouse Research Laboratories.

A prolific inventor, Dr. Chubb has to his credit more than 200 patents in his own name, scattered through a score of scientific fields—polarized light, electric welding, electric measuring instruments, current rectifiers, radio, electric heating, electronics, etc.

In 1919 he represented the United States as a delegate to the International Electro-technical Commission in London and the following year he was a delegate again when the commission met in Brussels. He is a fellow of the American Institute of Electrical Engineers, the Institute of Radio Engineers and the American Association for the Advancement of Science.

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Sargent Elected President of Central Arizona Light

Henry B. Sargent, executive vice-president of the Central Arizona Light & Power Co., Phoenix, has been elected president of that utility to succeed Edward H. Coe, resigned. Mr. Coe, who has been chief operating officer and president of the company for almost 22 years, was elected chairman of the executive committee of the board and general consultant to the company.

Mr. Sargent went to Arizona from the Mississippi Power & Light Co., Jackson, where he was vice-president and general manager. He started in the utility business 19 years ago. Details of Mr. Sargent's career were published in ELECTRICAL WORLD (April 6, 1946) following his Arizona assignment.

Mr. Coe was connected with the lamp department of the General Electric Co. in Harrison, N. J., before entering the utility field in 1912 as an engineer with the Niagara, Lockport & Ontario Power Co., Buffalo, N. Y. He held various positions from engineer to assistant to the general manager; in 1916 became identified with the Colorado Power Co., rising to the position of assistant to the general superintendent, and then in 1925 he was made vice-president and general manager of the Central Arizona Light & Power Co. In 1936 he was elected president.

A. B. Campbell Appointed Executive Secretary, NACE

A. B. Campbell, formerly eastern representative of Hughes Brothers, has been appointed executive secretary of the National Association of Corrosion Engineers, with headquarters in Houston, Tex. The necessity for a clearing house for the exchange of corrosion information, and for the establishing of standard procedures and methods of carrying them out, led to the formation of the association in 1943.

A. B. CAMPBELL

Mr. Campbell is a graduate in electrical engineering of the University of Illinois and also has the professional degree of electrical engineer from that school. From 1915 to 1920 he was on the faculty of the engineering extension department of Iowa State College and during the following three years he served as electrical engineer on the Iowa Board of Railroad Commissioners.

In 1924 he entered the engineering department of the old National Electric Light Association remaining with the successor association, the Edison Electric Institute, until he joined Hughes Brothers in New York in 1943. During this period Mr. Campbell devoted his attention primarily to transmission and distribution questions and to accident prevention work and related subjects, at the time of his resignation being secretary of two E.E.I. committees, the transmission and distribution committee and the accident prevention committee. He is a fellow of the A.I.E.E.

IAEL Elects W. G. Hills President at N. Y. Meeting

(See Front Cover)

William G. Hills, who was elected president of the International Association of Electrical Leagues at the annual conference held recently in New York (ELECTRICAL WORLD, October 12, page 91), has been engaged in trade organization work for more than 20 years, and has been managing director of the Electric Institute of Washington since 1945.

Following graduation from the Trade Association School of Northwestern University in 1929, he became associate manager of the Columbus (Ohio) Retail Merchants Association. Eight years later he organized and was the first secretary of the Electric League of Columbus. When the Electric Institute of Washington was established, he went to the nation's capital as assistant to the managing director. In 1937 he was made director of public relations for the American Bottlers of Carbonated Beverages, national organization of the soft drink industry.

When J. S. Bartlett became commercial manager of the Potomac Electric Power Co., he was succeeded in April, 1945, by Mr. Hills as managing director of the Electric Institute.

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▶ DR. WILLIAM D. COOLIDGE, consultant to the General Electric Research Laboratory in Schenectady, has been named head of a new division of the laboratory, which will be located at the government-owned atomic energy plant near Richland, Wash. Operation of the huge Hanford Engineer Works, where active material for several of the atomic bombs was produced during the war, was taken over by General Electric on September 1. Activities of the new laboratory unit will be one phase of the extensive atomic energy research and development program which the company is conducting for the government at Hanford. Dr. Coolidge retired recently as director of the G. E. Research Laboratory with which he had been associated since 1905. He has been responsible for many important developments, particularly the Coolidge x-ray tube, and ductile tungsten, which made possible the modern incandescent lamp. Since his retirement from these positions in 1945, he has been active as x-ray consultant to the laboratory.

▶ JOHN FROST has been appointed senior engineer, construction division, Philadelphia Electric Co. Mr. Frost became identified with the Philadelphia utility in 1919 as inspector of underground lines. After holding various positions in connection with underground engineering work, he was named assistant superintendent, underground lines, and last year was appointed superintendent of that section, the position he held at the time of his recent appointment.

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D. C. Hess New President of Indiana Electric Group

Dan C. Hess, who was elected president of the Indiana Electric Association at the recent fall convention held at French Lick Springs (ELECTRICAL WORLD, October 5, page 5), has been active in state utility affairs for more than 36 years, and at the present time is serving as vice-president in charge of operations of the Indianapolis Power & Light Co.

Mr. Hess obtained his early engineering experience with the Interstate Public Service Co., a predecessor company of the present Public Service Co. of Indiana, Inc., with which he was associated from 1910 to 1922. He then became affiliated with the Richmond, Ind., municipal plant, where he spent 16 years. It was in 1938 that he first became associated with the Indianapolis Power & Light Co. and the following year he was made vice-president.

D. C. HESS

Mr. Hess has been president of the Electric League of Indianapolis for the past seven years.

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▶ Henry L. BOWEN, formerly assistant superintendent of the Augusta division of Georgia Power Co., has been promoted to assistant manager of the industrial relations department. Mr. Bowen joined the company in March, 1926, while studying at Georgia Tech.

OBITUARY

Henry M. Hobart

Henry M. Hobart, retired consulting engineer of the General Electric Co., died at Schenectady, N. Y., on October 11 after an illness of several weeks. He was 77 years old. Mr. Hobart retired in 1941 after more than 50 years of active participation in the development of the electrical industry in this country and abroad.

Born in Boston, Mass., Mr. Hobart joined the testing department of the Thomson-Houston Electric Co., Lynn, Mass., immediately following graduation from the Massachusetts Institute of Technology in 1889. Later he worked in Dr. Charles P. Steinmetz's office at General Electric's Schenectady works, subsequently returning to Lynn. After serving with the British-Thomson-Houston Co. in London and the Union Elektricitäts Gesellschaft in Berlin, he returned to Schenectady in 1911 as consulting engineer with General Electric.

In recognition of his persistent efforts in the advancement of welding, he was awarded the Samuel Wylie Miller medal of the American Welding Society in 1936. After becoming acquainted with the European advances made in mercury-vapor rectifiers about 1919, he zealously worked for their introduction in the United States.

The author of numerous technical books and papers, Mr. Hobart was also the holder of some 30 patents, some in collaboration. He served on various committees of the American Institute of Electrical Engineers and as its representative on the U. S. National Committee of the International Electrotechnical Commission (1914-32). Mr. Hobart was particularly active in standards work and was also a member of the American Welding Society, American Society of Mechanical Engineers, and of the British Institutions of Electrical Engineers, Mechanical Engineers and Civil Engineers.

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▶ SEYMOUR S. EVANS, manager of the Defiance division of the Toledo Edison Co. until his retirement last year, died on October 2 at his home in Defiance after a long illness. Born in Atkins, Iowa, in 1896, Mr. Evans was graduated in electrical engineering from Iowa State College and following service in the Royal Canadian Air Force in World War I, he joined the Doherty organization at Denver. In 1920 he was transferred to the Empire District Electric Co. at Joplin, Mo. After nine

years at Joplin, he went to Defiance as manager, where he remained until his retirement in 1945.

▶ DR. ROBERT L. SACKETT, consulting engineer and former dean of the School of Engineering of Pennsylvania State College, died on October 6 at his home at the Hotel Sheraton, New York, after a long illness. He was 79 years of age. A native of Mount Clemens, Mich., Dr. Sackett served as dean of the School of Engineering at Penn State from 1915 to 1937 and upon his retirement was appointed dean emeritus. A fellow of the American Association for the Advancement of Science, Dr. Sackett served as its vice-president in 1928 and 1940, and as president of the Society for the Promotion of Engineering Education from 1927 to 1928. In 1938 S.P.E.E. awarded him the Lamme Medal for "his work in coordinating the thought of industry and education for the improvement of their understanding of their mutual problem in selecting and developing potential leaders."

▶ JOHN HICKOK, formerly district manager of the Puget Sound Power & Light Co.'s Whatcom and Skagit County properties at Bellingham, Wash., died on September 29 at Bellingham. He had retired in 1942 after 40 years with the company. Born in Ionia, Iowa, in 1873, Mr. Hickok worked with power companies at St. Paul, Minn.; Portland, Ore.; Vancouver, Wash.; San Francisco and Honolulu, T. H. He was made general superintendent of Puget Sound properties, with headquarters in Bellingham, in 1932 and in 1936 was advanced to the position of manager for the Bellingham district.

▶ MILSTON P. KERR, assistant general manager of the Wheeling Electric Co., Wheeling, W. Va., died in that city on October 7 at the age of 57. A graduate of the University of Pittsburgh, Mr. Kerr had been connected with the West Penn Power Co. and the Wheeling Electric Co. before going to Canton, Ohio, in 1922 as superintendent for the Ohio Power Co. He returned to the Wheeling Electric Co. in 1936.

▶ GEORGE L. TIMMONS, who retired last July as chairman of the South Carolina Public Service Commission, died on September 30 at his home in Hartsville, S. C. Mr. Timmons had served on the commission since the spring of 1944.

▶ FRED B. BOWER, for many years manager of the Shelburne, N. S., power plant, died on September 30 after an illness of only three days. Mr. Bower was 53 years old.

Single-Pole Transmission Reclosing Summary Given

Great Lakes District, A.I.E.E., Told of Experiences of Indiana Company During 3-Year Period

An experience report on the only large interconnected transmission line application of single-pole, high-speed reclosing was a highlight among papers of particular interest to power engineers attending an A.I.E.E. district meeting in Indianapolis last week. An address on the implications of atomic energy by Dr. Frank H. Spedding, Manhattan District Declassification Committee, drew a capacity audience, and an afternoon of inspection trips was provided to close the program of the Great Lakes District.

J. J. Trainor and C. E. Parks, Public Service Co. of Indiana, presented a three-year operation summary for five separate line sections comprising 331 miles of 132-kv. line with single-pole relaying and reclosing. Deliberate attempts to increase operations were made on one section by omitting static wires. Successful tripping and reclosing were recorded in 90 percent of all cases of temporary phase-to-ground faults, which were 77 percent of all faults caused by flashover. They observed no evidence of system instability even with large amounts of power flowing.

Discussion of rural line sectionalizing, following a paper by R. F. Quinn, General Electric Co., indicates there is far less agreement on this phase of service protection. Coordination of fuses and oil circuit reclosers for rural lines is further complicated by questions of the economics involved, it was observed. C. M. Stanley, Muscatine, Iowa, emphasized the next phase of rural service as the increase in reliability and capacity to care for rapidly growing loads on existing lines.

R. J. Kryter, Esterline-Angus, in reviewing electronic applications in measurements, concluded that they will not replace present methods until they have proven more advantageous. Vacuum tubes must do a better job than other means to overcome the physical disadvantages in their use, he observed, and he does not feel they are yet ready for standardization for this purpose.

Observing that differential relay protection of large transformer banks has certain inherent limitations, Eric T. B. Gross, Illinois Institute of Technology, suggested that more attention be given to non-electrical protective schemes. He reviewed the use of gas-actuated relays and concluded that their simplicity and high sensitivity recommend them for wider application. A simple method of calculating power system losses was presented by J. B. Ward, Purdue University.

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Fourth Unit for Ohio Plant

Construction has begun on the installation of a fourth unit of 10,000-kw. capacity at the Bluffton, Ohio, plant of the Central Ohio Light & Power Co.

MEETINGS

California Municipal Utilities Association—Annual meeting, Glenwood Mission Inn, Riverside, Calif., November 7-8. F. V. Frey, secretary, Pasadena Light & Power Dept., Pasadena, Calif.

Pennsylvania Electric Association—Communications committee, Benjamin Franklin Hotel, Philadelphia, November 14-15. W. C. Feaster, chairman, Potomac Edison Co., Hagerstown, Md.

National Association of Railroad and Utilities Commissioners — Annual meeting, Biltmore Hotel, Los Angeles, November 12-15. Ben Smart, secretary, 7411 New Post Office Bldg., Washington, D. C.

Previously Listed

International Association of Electrical Inspectors—Western Section, Gibson Hotel, Cincinnati, Ohio, October 21-23; Eastern Section, Mark Twain Hotel, Elmira, N. Y., October 28-30.

Edison Electric Institute — Accident prevention committee, Hotel Statler, Buffalo, N. Y., October 31-November 1.

American Welding Society—Annual meeting, New York, N. Y., October 24 and Atlantic City, N. J., November 17-22.

ASME-AIME Joint Fuels Conference — Bellevue-Stratford Hotel, Philadelphia, Pa., October 24-25.

Pennsylvania Electric Association—Electrical equipment committee, Lord Baltimore Hotel, Baltimore, Md., October 24-25; Transmission and distribution committee, Abraham Lincoln Hotel, Reading, Pa., October 24-25; Meter committee, Benjamin Franklin Hotel, Philadelphia, Pa., November 7-8; Systems operation committee, Stytop Lodge, Pa., November 7-8.

RLM Standards Institute—Annual meeting, Brighton Hotel, Atlantic City, N. J., October 28.

National Electrical Manufacturers Association—Annual meeting, Traymore Hotel, Atlantic City, N. J., October 28-November 1.

Missouri Valley Electric Association—Rural Roundtable Discussion, Hotel Continental, Kansas City, Mo., October 29; Fall sales and rural conference, Hotel Continental, Kansas City, Mo., October 30-31.

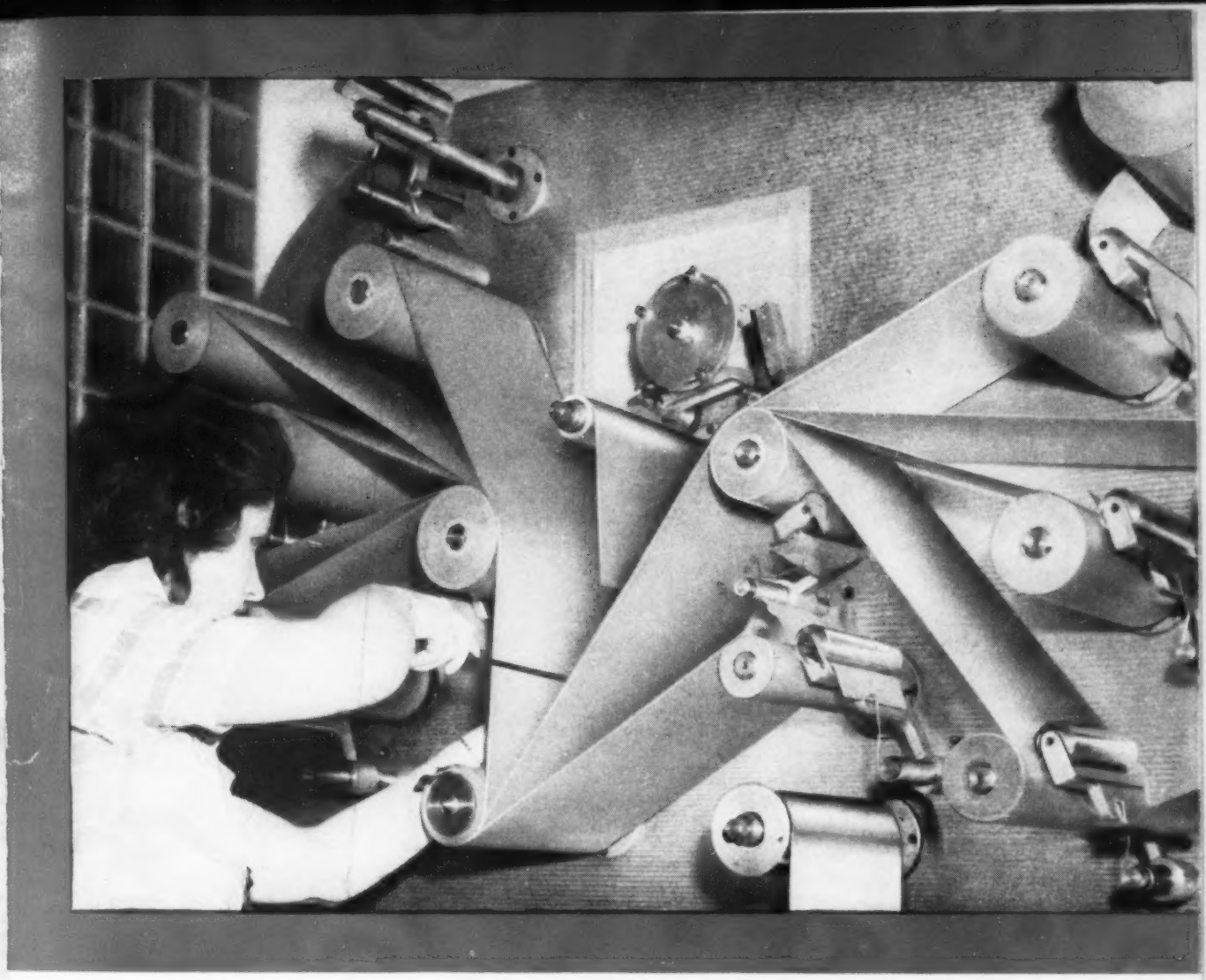
Southeastern Electric Exchange—Commercial Section, Atlanta Biltmore Hotel, Atlanta, Ga., November 6-9.

National Farm Electrification Conference—Sherman Hotel, Chicago, Ill., November 7-8.

National Research Council—Conference on Electrical Insulation, Johns-Hopkins University, Baltimore, Md., November 7-9.

New Jersey Utilities Association—Annual meeting, Seaview Country Club, Absecon, N. J., November 22-23.

National Exposition of Power and Mechanical Engineering—Grand Central Palace, New York, N. Y., December 2-7.



How L-M Distribution Capacitors are Built to Yield Utmost Service and Longer Life

The real heart of a capacitor is the "pack", made by winding together thousands of yards of special thin Kraft insulating tissue with pure aluminum foil.

Working in a spotlessly clean room, in air free from dust and closely controlled as to temperature and humidity, this young woman has just finished winding a pack for an L-M Capacitor. Here are three reasons for the exceptional performance and long life of these capacitors:

1 Packs are not overworked. Extra layers of insulating tissue are added between the aluminum foil capacitor plates to reduce the voltage stress—to provide a higher than usual safety factor against breakdown.

2 Insulation is dried and impregnated by L-M's exclusive method, under controlled heat, high vacuum and continuous *individual unit* electrical testi slow "capillary impregnation" is begun at tl opportune time and carefully controlled to assu plete saturation and freedom from voids or

3 "Elemex" is an ideal dielectric liquid devel L-M chemists. It is extremely stable, with n electric losses and high dielectric constant and s It is extremely noninflammable and it has no for moisture.

These safety-plus factors add up to the highest reliable field performance. L-M Capacitors mee NEMA standards for outdoor service. Now pro sizes 2,400 to 13,800 volts, 15 KVA. For further information address Line Material Company, Milwaukee 1, Wisconsin.

LM

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CAPACITORS

L-M DISTRIBUTION EQUIPMENT INCLUDES: Distribution Transformers • Fuse Cutouts and Fuse Links • Lightning Arresters • Oil Switches • Pole Line Hardware • Line Construction Specialties • Underground Equipment • Fibre Conduit • Street and Airport Lighting Equipment • Wired Radio Control Equipment • Capacitors

The Industry In Pictures

LIGHTING TEST—American Gas Accumulator Co. equipment gets test at Landing Aids Experimental Station, Arcata, Calif.

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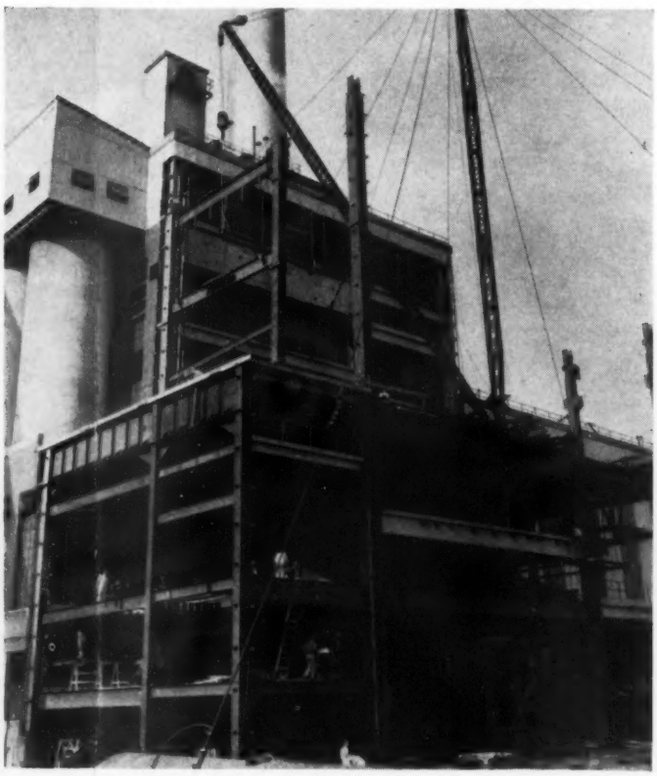
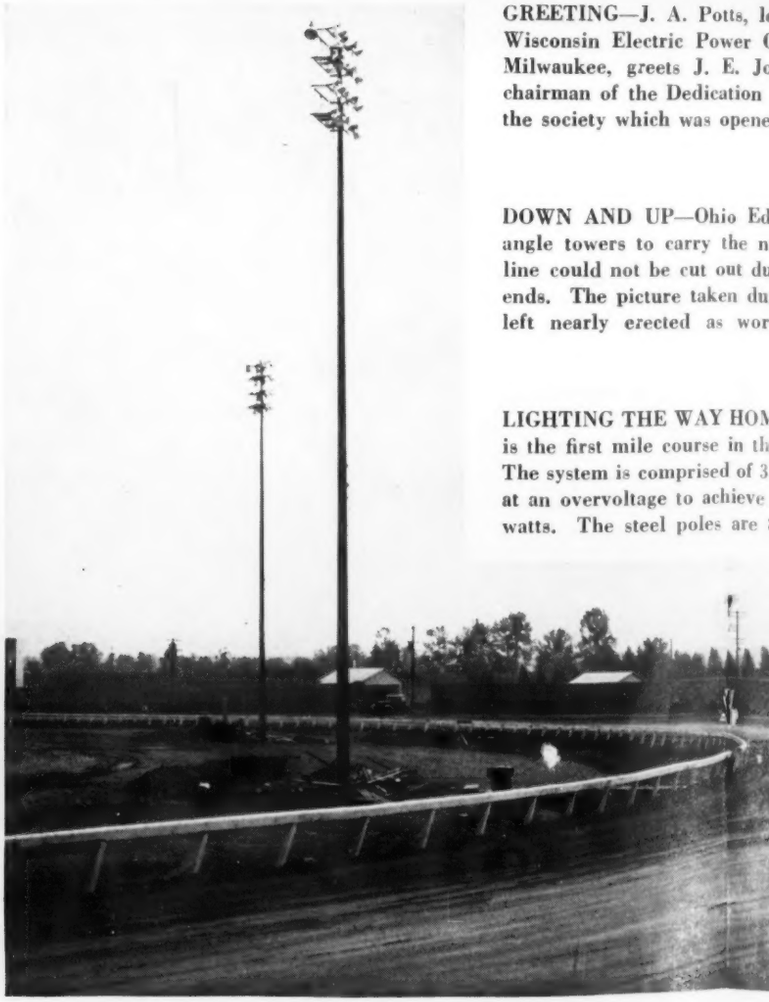
MORE POWER FOR NEW ENGLAND—Boston Edison Co. is adding a third 50,000-kw. unit at its Mystic plant. The picture shows the steel framework of the extension to house the boiler



GREETING—J. A. Potts, l
Wisconsin Electric Power
Milwaukee, greets J. E. Jo
chairman of the Dedication
the society which was opene



DOWN AND UP—Ohio Ed
angle towers to carry the n
line could not be cut out du
ends. The picture taken du
left nearly erected as wor

LIGHTING THE WAY HO
is the first mile course in th
The system is comprised of 3
at an overvoltage to achieve
watts. The steel poles are

Potts, left, general engineer, Executive Department of Power Co. and president of the Engineers' Society of . E. Jones, engineer with Cutler-Hammer, Inc., and ication Committee, at the entrance to the new home of s opened last month with a banquet and "open house"

•

Ohio Edison Co. replaces an old steel tower with two y the new 138-kv. Akron-Cleveland line. Because the t out during the week, all work was done in two week- aken during the first weekend shows the first tower on as workmen demolish the old tower on the right

•

AY HOME—Oregon's new race track, Portland Meadows, se in the country to be lighted to permit night racing. ised of 336 lights, in groups of 19, of 1,500 watts operated achieve 1,740 watts per unit. The total load is 584,600 les are 80 ft. high

HENRY MURAL DEDICATION—A mural depicting the contributions of Joseph Henry to science, on the walls of the Engineering Building of Princeton University, was dedicated recently during the university's bicentennial celebration. The panel in the background shows Henry demonstrating electro-induction on the campus at Princeton in 1842 while he was serving as professor of mathematics and physics

Accurate load surveys are continuous and *automatic* in domestic areas served by CSPB Distribution Transformers in banked operation. The operation of the signal lights is based on the thermal capacity of the transformers and provides a constant report of load conditions . . . flashing a warning signal of approaching overloads before outages occur.

Load growth can easily be provided for by adding one or more transformers to the secondary main circuit. Even if the overload warning is disregarded, no damage can result. Transformers are completely protected—a feature not possible in former banking systems.

The automatic load survey is one of many advantages of the CSPB Transformer. It will pay you to check this new development that improves service while cutting installed capacity as much as 35%, and reducing investment. Ask or write for booklet B-3777. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-70484

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Get these Westinghouse CSP features for your conventional radial circuits. **Line Lockout Protection** with high-voltage protective links. **Overload and Short-circuit Protection** with built-in breakers. **Complete Surge Protection** with "De-ion" arresters. **Lighter Weight, Better Regulation** with Hipersil cores.

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CSPB

DISTRIBUTION TRANSFORMERS

SEC RULINGS

The Securities and Exchange Commission recently issued a series of orders affecting electric utility companies.

PUBLIC SERVICE CO. OF INDIANA, INC., and its subsidiary, Indiana Gas & Water Co., Inc. have won commission approval on their application, whereby the latter proposes to amend its articles of incorporation to provide for 1,000,000 common shares, $10 par value, and to reclassify its outstanding 277,500 no par common shares into 570,948 shares of $10 par value common. Public Service proposes to purchase from its subsidiary 29,052 additional common shares for $290,524. Indiana Gas would use the proceeds together with the proceeds from a recent sale of $500,000 of notes for additions and improvements. (Release No. 6911).

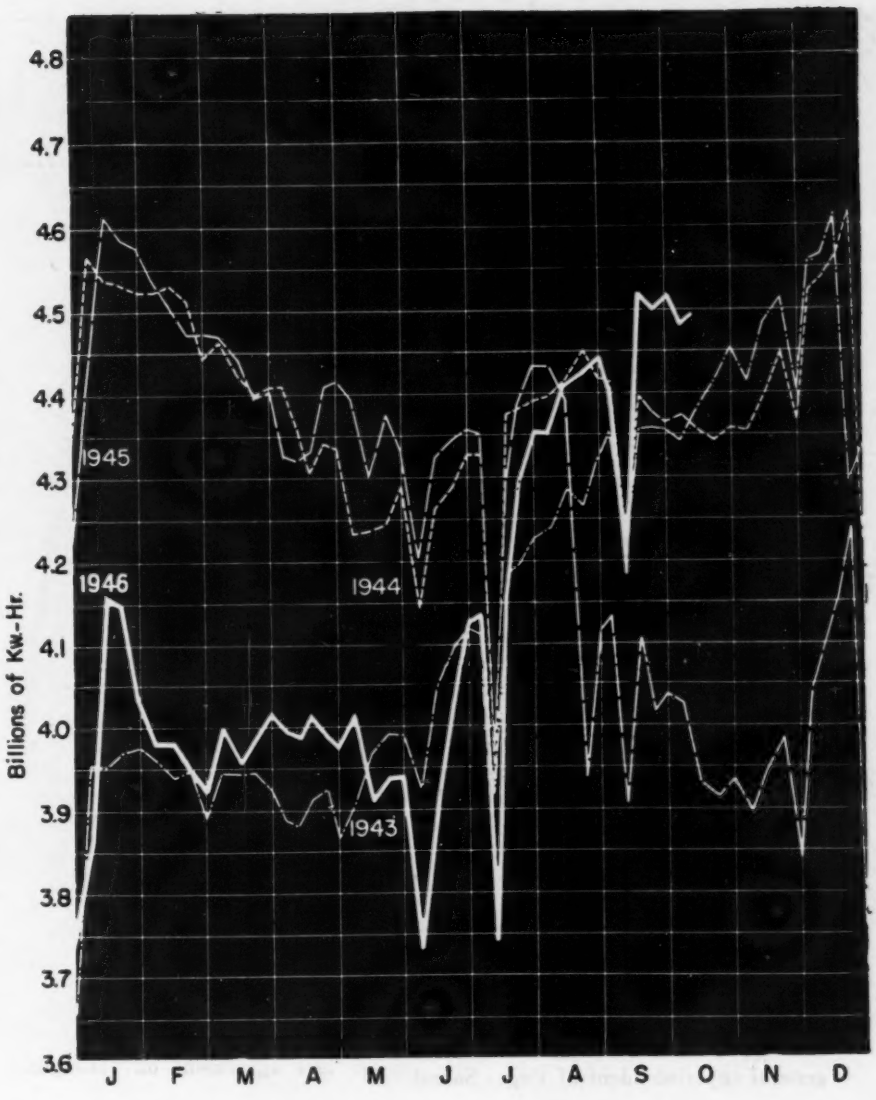
ALABAMA POWER CO.'s proposal for the dissolution of its wholly owned subsidiary, the Auburn Water Co., and distribution of its estimated assets of $339,051 to Alabama Power has been approved. The Auburn utility sold its water works system to the City of Auburn last July. (Release No. 6919).

UNITED CORP. received approval of its proposal to pay the 75-cent quarterly dividend that accrued on its $3 cumulative preferred stock on October 1. Based on the 1,180,799 shares outstanding on September 11, the dividend will amount to $885,000, of which $690,000 will be paid out of earned surplus balance, and the remaining amount will be charged to unrestricted capital surplus. The dividend payment is a step in United's program to comply with the SEC order of August 14, 1943, directing the corporation to change its capitalization to one class of stock and to cease to be a holding company. (Release No. 6921).

PROVINCETOWN LIGHT & POWER CO.'s proposal to sell to its parent, New England Gas & Electric Association, an additional 125 shares of $100 par value common stock and to use the proceeds to partially pay indebtedness incurred for plant improvements has been approved. (Release No. 6917).

FEDERAL LIGHT & TRACTION CO., Stonewall Electric Co., Frontier Power Co., Monument Electric Co. and J. G. White & Co., Inc., have been granted an extension of time to and including November 30, 1946, to consummate the transactions between Stonewall Electric Co. and Monument Electric Co. as described in clause (e) of the first paragraph of the SEC's order of December 26, 1945. (Release No. 6928).

UNITED LIGHT & RAILWAYS CO. has been permitted to withdraw application for authority to issue and sell privately to banks $17,000,000 of unsecured promissory notes and to use proceeds, together with treasury cash, to redeem all outstanding 5½ percent debentures, due August 1, 1952. Debentures were retired from proceeds of sale of $25,000,000 of promissory notes, issuance of which was previously approved by the commission. (Release No. 6929).



Electric Output Curve Turns Upward

The electric output curve turned upward during the week ended October 12, 1946, according to figures released by the Edison Electric Institute.

The amount of electrical energy distributed by the light and power industry during the week amounted to 4,495,220,000 kw.-hr., compared with 4,478,092,000 kw.-hr. during the preceding week and with 3,934,394,000 kw.-hr. during the corresponding week of 1945, that of October 13. The overall change for the country as a whole for the week ended October 12 as compared with the corresponding week of 1945 was an increase of 14.3 percent. For the week ended October 5 the percent change amounted to only 11.2 percent.

All of the major geographical regions of the country reported increases over the previous year. The largest percent increase was shown by the Southern States—24.1 percent, comparing with an increase of 19.5 percent the preceding week. The Pacific Coast group, running second, showed an increase of 17.7 percent, comparing with 12.2 percent for the week ended October 5, as compared with the corresponding week of 1945.

Weekly Output, Millions Kw.-Hr.

1946		1945			
Oct. 12	4,495	Oct. 13	3,934	Oct. 7	4,355
Oct. 5	4,478	Oct. 6	4,028	Oct. 14	4,375
Sept. 28	4,518	Sept. 29	4,039	Sept. 30	4,366
Sept. 21	4,507	Sept. 22	4,019	Sept. 23	4,377
Sept. 14	4,521	Sept. 15	4,106	Sept. 16	4,395
Sept. 7	4,184	Sept. 8	3,909	Sept. 9	4,228
Aug. 31	4,404	Sept. 1	4,137	Sept. 2	4,415
Aug. 24	4,444	Aug. 25	4,116	Aug. 26	4,418
Aug. 17	4,422	Aug. 18	3,939	Aug. 19	4,451
Aug. 10	4,412	Aug. 11	4,395	Aug. 12	4,415
Aug. 3	4,351	Aug. 4	4,432	Aug. 5	4,399
July 27	4,352	July 28	4,435	July 29	4,391

Percent Change from Previous Year

	Oct. 12	Oct. 5	Sept. 28
New England	+12.8	+ 9.9	+ 9.7
Mid-Atlantic	+ 9.7	+ 7.8	+ 8.9
Central Industrial	+10.1	+ 8.1	+ 9.6
West Central	+11.7	+ 9.3	+ 9.0
Southern States	+24.1	+19.5	+17.3
Rocky Mountain	+ 6.5	+ 4.3	+ 1.2
Pacific Coast	+17.7	+12.2	+16.8
Total United States	+14.3	+11.2	+11.9

MANUFACTURERS & MARKETS

Full-Scale Manufacturing Production not Possible till Spring, NEMA Reveals

Heavy Apparatus and Appliance Segments of the Industry Still Hampered by Material Shortages—Components Likely to Be Short for Some Time—Labor Shortage Added Factor

The electrical manufacturing industry will not achieve full-scale production until spring, and it may not be reached until July, 1947, according to a survey of 100 member companies made by the National Electrical Manufacturers Association. The companies, which represent every branch of the industry, were virtually unanimous in the belief that the problem of material shortages has not been alleviated to any substantial degree, nor is there prospect of permanent solution in the near future.

Shortages are being felt in all phases of the industry. Generator, transformer, cable, motor, appliance, and other manufacturers are still affected.

One manufacturer of wire, for example, stated that shortages of raw materials, such as lead, natural rubber, cotton yarns, and cotton sheeting, as well as copper, are at present affecting production very materially. "On some lines," he said, "we could increase production by as much as 40 percent if we had the necessary cotton yarns and sheeting. On lead cables we could increase production 100 percent if we had the lead." Present production of this manufacturer is approximately 75 percent of 1941 volume.

A manufacturer of transformers estimated that it will take a full year before copper is in adequate supply. Another concern declared that many of the articles appearing in the press stating that material supplies have shown improvement were entirely too optimistic.

"We are having just as much, if not more difficulty, than before the recent optimistic outburst," he said, "in securing enough copper magnet wire, iron castings, and other smaller items to enable us to maintain a part of our possible production.

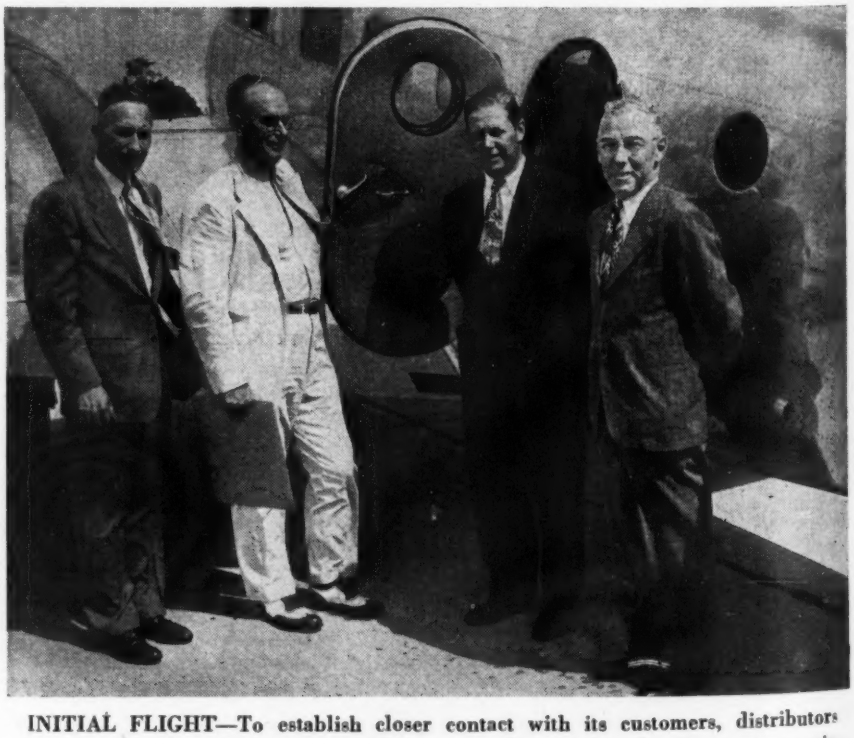
"Another unforunate condition," he pointed out, "is that because of newspaper and other comments regarding 'enormous backlogs' and predicted tremendous requirements during the next five years, labor has the idea that every electrical manufacturer will have all the business he can handle, with practically no sales expense, and little if any thought regarding the cost of labor as a whole, or respecting the differential labor rates for competing manufacturers in various districts."

As pointed out earlier in the year by R. L. White, president of NEMA, the obtaining of castings for peace-time production has proved to be a real problem because of labor shortages.

One manufacturer complained that "the supply of small iron castings is most uncertain because of the pig iron situation and lack of skilled help. Very few men even care to try to work in foundries; so beginners are also scarce."

A manufacturer of electric conduit fittings and iron castings said: "We are affected by a labor shortage in the foundry as labor seems to be unwilling to learn the moulding trade." Another manufacturer pointed out that, despite shortages of pig iron and labor in the face of unprecedented demand for foundry products, recent governmental policies have been directed toward obtaining a higher percentage of foundry output for the housing program, thus creating a serious condition for the manufacturers of such products as larger motors.

Most of the companies report a shortage of labor, especially women workers. "We are experiencing difficulty in obtaining a sufficient number of



INITIAL FLIGHT—To establish closer contact with its customers, distributors and branch offices, John A. Roebling's Sons Co. has purchased a five-passenger airplane, equipped with two 450-hp. motors, two-way radio and other safety devices. Starting on its first scheduled flight recently, the plane carried (l. to r.): F. S. Burtch, manager, wire rope sales division; C. M. Jones, vice-president in charge of public and industrial relations; C. R. Tyson, president; E. C. Low, vice-president in charge of sales. On the maiden flight, 10,000 miles will be covered

employees for various departments," one manufacturer said, "we need die makers, women for light assembly work, press operators, common labor and office workers. People who will work on second and third shifts are hard to find."

Reports from various sections of the country, especially larger cities, stressed the Unemployment Insurance as one of the determining factors in keeping women from taking jobs at the present time.

"We find in the Chicago area," one manufacturer said, "that female workers would rather stay at home and draw their $20 a week, than work for an additional $10 or more. Industry in this area can only wait until the time interval runs out and this class of workers will be forced to seek employment."

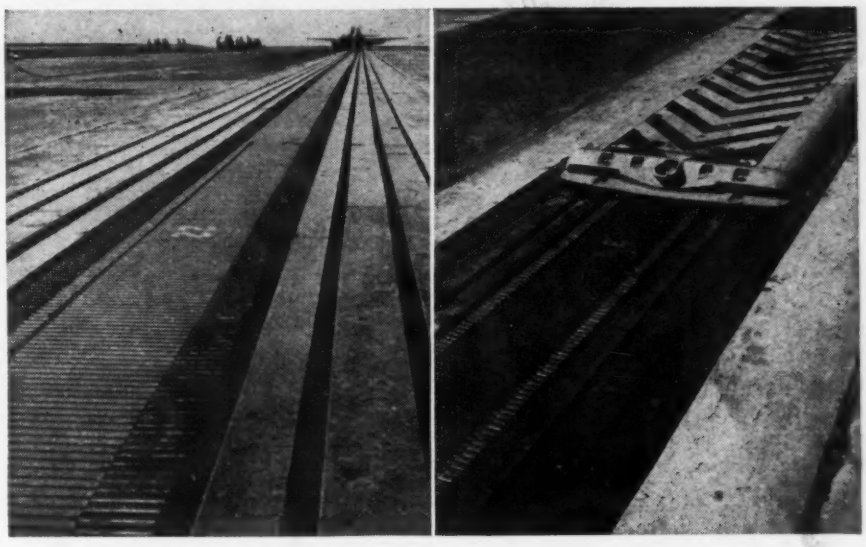
The majority of companies declared also that labor efficiency was below that of 1941, in some cases running as low as 65 percent of the pre-war standard. This is attributed to a variety of factors, aside from the responsibility which may be placed upon labor itself for this condition. One factor is that working forces are being increased in many plants, and considerable time and effort must be devoted to training new workers. "The output of many of our workers is affected by the fact that the jobs to which they are now assigned are new to them. Another factor is that the turnover of veterans not formerly in our employ has been high." Intermittent slowdowns due to material shortages were also cited.

Fractional Motor Output

The production of small motors is running from about 50 to 80 percent of capacity in various plants, principally owing to shortages of copper and other materials, although most companies in this field are producing far in excess of their 1941 rates because of war-time expansion. With unprecedented peace-time demand, however, small motors are still on the critical list, a shortage being felt particularly by appliance manufacturers. Several of the companies reporting have increased plant capacity under construction, but this, too, is being delayed by building material shortages.

A manufacturer of small appliances stated: "Motors still continue to be one of our bottlenecks. Production is a touch-and-go proposition with first one material shortage, then another, holding us up. Our volume of production in the last six months of this year, therefore, will run between 60 and 80 percent of what it was in the same period of 1941."

Linear Motor Cuts Plane Runway 86 Percent



CONTACT—About one-third of the 1,382-ft. linear motor track installed at Patuxent River, Md., can be seen at the left with the plane in background at the starting position. The shuttle car (stator) and details of the track (rotor) are shown at the right. The central portion of the track of the linear induction motor is the 12-in. wide core. The primary core and windings are on the underside of the 5½-in. high shuttle car. Outside of the squirrel cage windings are channel shaped running rails. The wheels fit inside the channel rails and thereby prevent the car from rising during acceleration. The two outer strips are hardwood covers to protect the copper collector rail system against the elements

A linear electric motor more than a quarter-mile long is the latest answer to the problem of launching jet-propelled and robot planes and heavy bombers from shipboard or small landing fields without the initial impact of conventional catapults. This new device, called the Electropult, was designed and built by engineers of the Westinghouse Electric Corp. for the United States Navy.

The Electropult is essentially a huge electric motor laid out flat. The 1,382-ft. track corresponds to the rotor of a conventional motor, and the small shuttle car which runs along it acts as the stator. In operation, a plane is hitched to the shuttle car, which speeds down the track and tows the plane into the air. In recent demonstrations at the Naval Air Test Center, Patuxent River, Md., the unit launched a jet-propelled plane at 116 miles an hour in 4 1/10 sec. after a run of 340 ft. Unassisted the plane would have required a run of about 2,000 ft. for the take-off. Running free, without load, the shuttle car has built up a speed of 226 miles an hour in slightly less than 500 ft.

Two of these linear motors have been built for the Navy, the first installed at Mustin Field, Philadelphia, and the other at the Patuxent River Base. The latter is the more advanced model, although both are fundamentally the same. At Patuxent River, the unit is installed on a 2,800-ft. concrete runway, 100 ft. wide. The track is mounted flush with this runway above a concrete trench which contains the copper bus bars that carry current to the motor. Sunk into the concrete on both sides of the track are rails to carry the shuttle car.

The shuttle car itself is 11½ ft. long, 3½ ft. wide, and extends 5 in. above the track. To harness the plane to the car a bridle of steel cable is used. The plane rides along the track on its own wheels and when flying speed is reached the car is stopped, the bridle drops off, and the plane takes to the air.

The power supply for the Electropult is housed in a sunken concrete vault beside the runway. A Pratt & Whitney 1,100 hp. aircraft engine starts the cycle. This engine drives a d.c. generator which is connected to a d.c. motor. This motor in turn is connected to an a.c. generator and a 24-ton flywheel. The flywheel develops a tremendous amount of kinetic energy when accelerated to full speed of 1,300 rpm. It is the kinetic energy stored in this 1,300-rpm. flywheel that drives the a.c. generator which supplies the 12,000-kw. demand during the few seconds it takes to launch a plane.

The unit has no apparent limitations in speed or capacity within the range of

requirements which are now foreseen, Westinghouse engineers state. It gains in effectiveness as the size of the aircraft increases and with the ever-increasing speed and weight of aircraft, these engineers foresee it as a natural choice for the larger sizes of aircraft carriers.

Designs have already been completed for a unit capable of launching the largest existing airliners at 120 mph. with a take-off run of 500 ft. Such airliners now need a run of about 4,000 ft. to accelerate to flying speed. Maximum acceleration would be about one "G" which would be built up during the first two seconds of the take-off run and would press the passenger back into his seat by a force about equal to his own weight.

•

Pittsburgh Strike Drops Business Index 51 Points

Owing almost entirely to the power strike, business in the Pittsburgh district slumped severely in the past two weeks, according to the Bureau of Business Research, University of Pittsburgh. In the week ended September 21, the Bureau's index of business stood at 198.6 per cent of the 1935-1939 average; it decreased to 175.5 in the week ended September 28 and tumbled to 147.6 in the week ended October 5. Thus, in two weeks of the power strike the index recorded a net drop of 51 points. Presumably the drop was worse in the immediate urban area than in the larger district covered by the index.

Effects of the power shortage were reflected primarily in the decline in the volume of trade; industrial production and freight shipments showed only moderate decreases. After allowance for the usual seasonal changes, the index of trade, heavily weighted by Pittsburgh, dropped from 218.2 as of September 21 to 82.1, or approximately 60 percent; the index of production was down about 11 percent in the two-week period, and the index of shipments was lower by about 6 percent.

Steel mill activity in the district showed little change, the operating rate being 98.8 percent of capacity in the week ended September 21, 96.2 percent as of September 28, and 97.6 in the week ended October 5. Likewise, the number of active blast furnaces reflected little change. Bituminous coal production averaged about the same in the past two weeks as in the week ended September 21; electric power production, of course, was down sharply. Rail shipments last week were down about 6 percent from the week ended September 28, whereas river tonnage was slightly higher.

Department stores sales in Pittsburgh fell sharply in the week ended September 28, and for the week ended October 5 were almost to the zero level.

•

Two More Allis-Chalmers Plants Return to Work

Two more of the seven Allis-Chalmers plants have concluded agreements with their respective unions and returned to work. This action brings to four the number of plants in operation.

The first break in the seven months' old strike occurred at the Pittsburgh plant on September 16. Very shortly thereafter, the strike ended at the Springfield, Ill., plant. On October 1, the workers at Norwood, Ohio, returned to work following an agreement with the union. On October 12, the La Porte, Ind., plant employees voted to return.

Basically, the contracts are the same as that signed at Pittsburgh. Wage increases totaling 13½ cents per hour were awarded in addition to the 5-cent increase granted last December.

Plants at La Crosse, Wis., Boston, Mass., and West Allis, Wis., still remain on strike. Workers at La Crosse this week rejected a contract which would have ended the strike that began on March 14. Here, 723 members of Local 1424 were eligible to vote but only 400 cast ballots. The tally was 263 to 137.

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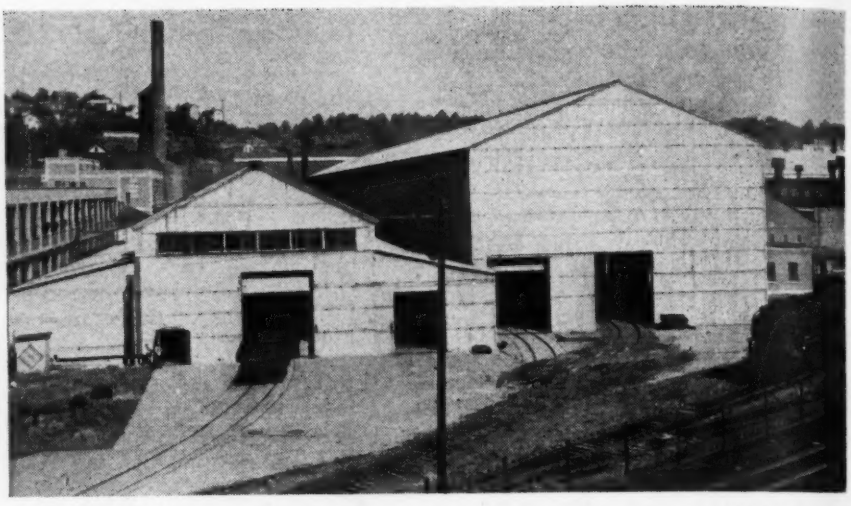
Cleaner Production Rises

Vacuum cleaner production reached a total output of 192,655 units in July of this year, compared with 161,631 in June and 155,843 in July, 1941.



NEW HOME—Pennsylvania Transformer Co.'s new works encompass 200,000 sq. ft.

Pennsylvania Transformer Moving to Canonsburg

Pennsylvania Transformer Co. is moving its manufacturing operations from Ridge Ave., Pittsburgh, to Canonsburg, Pa., approximately 20 miles to the south, Samuel Horelick, the company president, stated recently upon completion of negotiations by W. E. Kerr, vice-president and treasurer, for War Assets Administration buildings No. 20 and 25, used during the war by the Aluminum Co. of America as an aluminum forging plant.

The two buildings, which will house the production departments and associated offices, cover approximately five acres. A few departments, including sales, will remain at the present location, 808 Ridge Ave., Pittsburgh.

Divisions being shifted are the winding section, tank shop, machine shop, carpenter shop, sandblasting and paint shops, assembly department, testing department, and shipping department. Manufacturing operations in the new locality are expected to begin shortly.

Large power transformers will be manufactured in the larger of the two newly acquired buildings. The smaller building will house the manufacturing facilities and assembly lines for distribution transformers as well as the engineering and factory management offices.

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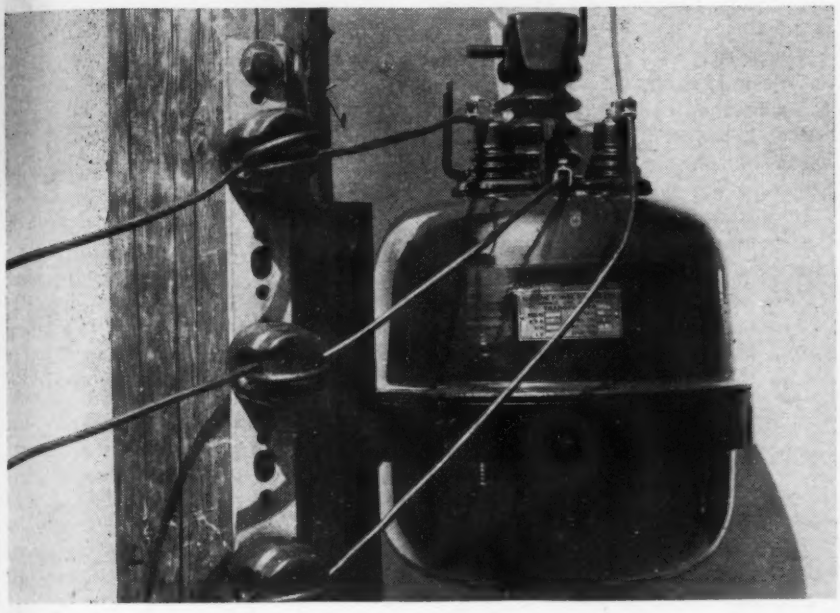
Form Industrial Ovens, Inc.

Industrial Ovens, Inc., is the new name of the organization which up to now has been known as the Industrial Oven Engineering Co., C. A. Litzler, president of the new corporation, has announced. The company has established itself in its new plant and offices at 13825 Triskett Road, Cleveland 11, Ohio.

NEW EQUIPMENT

Transformer Utilizes Novel Tank Design



A NEW stream-lined transformer, which is available in 1½- and 3-kva. sizes for rural application and which is designed for one-man installation, has been introduced by the Supreme Power Supplies, Ltd., Mimco, Ont. The transformer rests in a heavy mounting ring which is pole mounted and is therefore quickly replaceable in event of trouble.

The unit is available for use on 4.6- and 6.9-kv. circuits. The 1½-kva. size has a tank 11 in. in diameter and 14 in. high. The height of the tank plus the bus is 22 in. The 3-kva. tank is 15 in. in diameter and 14½ in. high. Height of tank and bus is 22½ in.

Transformer is of the conventional core type. The tank is different from anything which has hitherto been used on this type of equipment. To provide mechanical rigidity as well as low production costs, the tank is made of two half shells pressed out of No. 14 gage steel. The "inners" of the transformer are bolted into the lower half, the high- and low-voltage bushings mounted in the top half.

The two shells are then brought together, the leads slipped up through the bushings, bolted in place, and the shells then welded together.

After this operation and before the last bushing is sealed, the transformer is filled with oil and connections are made on the outside of the bushings. After completing the last seal, a pressure test of 15 psi. is run in search of oil leaks.

Transformers have a temperature rise not exceeding 50 deg. C. at full load. Bushings are made from special high-tension, wet-process porcelain. They are bolted into the tank flange by two half clamps, which are removable from the outside of the tank. The high-voltage bushings have a flash-over value of 20 kv., rms. dry, and 10 kv., wet, with a minimum impulse of 25 kv. Terminals are equipped with bushings.

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New Capacitor Line For Fluorescent Lamps

A NEW LINE of fluorescent line capacitors known as KS, KY, and KZ have been announced by Cornell-Dubilier Electric Corp., South Plainfield, N. J.

Features reported include stable operation at ambient temperatures up to 70 deg. C., capacitor terminal construction designed so that capacitor seal remains unaffected, soldering operation, low operating temperature, hermetic sealing, power factor between 0.25 and 0.4 percent, Dykanol impregnated, dual capacity combinations for cold cathode applications, compactness for relative capacity and voltage rating, and long or short soldering lugs whichever is essential.

Specifications reported for the KS type are 3-4.7 mfd., 220-330 a.c. voltage, tolerance plus or minus 5½ percent, length 1-1 1/32 in., width 2 1/16 in., height 3-4⅜ in.; for type KY, 1-4 mfd., 220-660 a.c. voltage, tolerance plus or minus 5½ percent, length 1⅛ in., width 1⅝ in., height 3½-6 in.; and for type KZ, 0.25-4 mfd., 330-1,200 a.c. voltages, tolerance plus or minus 5½ percent, length 2 1/16-2⅜ in., and diameter 2-2 3/16 in.

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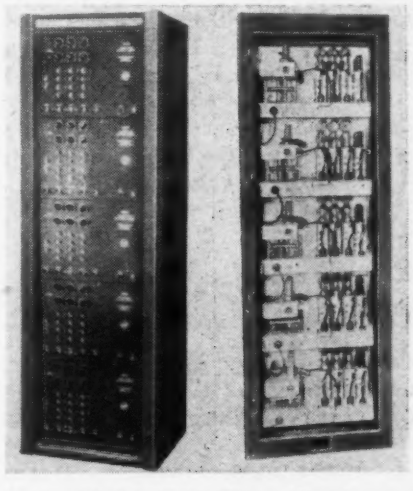
Multiple Electronic Counter Centralizes Controls

DESIGNED to serve as a centralized control over a number of independent machine processes, the new Electronic Counter in Multiple consists of five (Model 69-3) Dual Predetermined Electronic Counters, the Potter Instrument Co., 136-56 Roosevelt Ave., Flushing, N. Y., reveals.

Three 4-tube decades are employed



in the Model 69-3. These decades are now being used in many fields for such diverse applications as (1) control of time sequences of events, (2) time interval recording, (3) the counting of small objects, (4) the counting of radiation particles, and (5) the totalization of variable quantities from several independent channels. Counting rates as high as 12,000 per min. may be attained.

For actuating the input to the coun-

ter a simple contactor or a photoelectric pick-up may be used. The output is provided with a single-contact, double-throw, high-speed relay for initiating the control function which most often is performed by a fast acting solenoid. Modifications of the equipment described are available to satisfy specific requirements.

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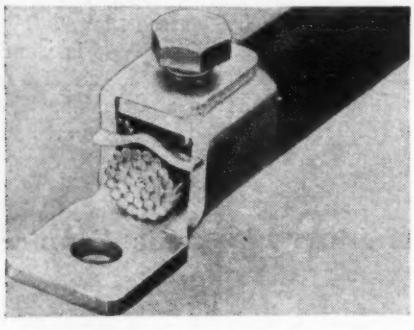
Scrulug Size Extended; Accommodates 500 Mcm

A NEW large size Scrulug has been added to this family of solderless lugs by the Burndy Engineering Co., 107



Bruckner Blvd., New York 54, N. Y. This new size, the KPA34, accommodates a range of wire and cable sizes from No. 4/0 wire to 500,000 cir. mil cable. It is installed by tightening the clamping bolt, which forces a pressure bar upon the cable. In spite of the fact that a large range of wires and cables will be accommodated, it was designed to have the operating characteristics of the largest cable. Formed from pure copper and brazed for added mechanical strength, the conductivity, pullout value, and the performance are reported to exceed the Underwriters' Laboratories Inc. requirements.

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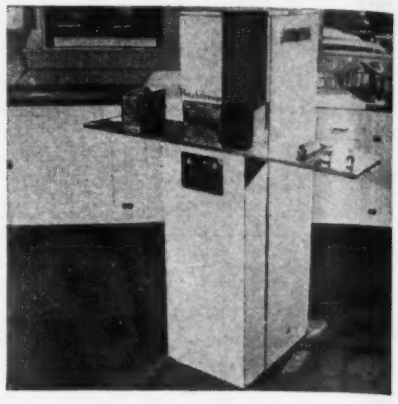
Electronic Micrometers Eliminate Human Touch

FOUR redesigned electronic micrometers for measuring the thickness of both conducting and non-conducting materials are being introduced by Carson Micrometer Corp., Newark, N. Y. The outstanding feature reported is that the use of electrical means of measuring eliminates the human sense of "feel." Unskilled operators are reported to obtain accurate readings to within 5/100,000ths of an inch on production testing.

Instruments are reported as unaffected by variations in temperature, line-voltage, vibration or aging of tubes. The units are portable and weigh about 20 lb.

H. F. Range Draws 5 Kw.; Connected to 115-V. Circuit

HIGH-FREQUENCY COOKING was demonstrated at the Waldorf-Astoria utilizing the new ranges being announced by Raytheon Mfg. Co., Waltham, Mass. The two units shown were designed for the preparation of sandwiches and small baking in commercial establishments and for use aboard airplanes. The company is now studying the problem of the domestic range of the same general type.



The commercial unit is designed for use on a 115-volt, 60-cycle circuit and has a demand of 5 kw. It has an output of 2 kw. at 300,000 Mc. The airborne unit has a separate 9-kw. d.c. generator power supply.

In appearance the new unit, called the Radarange, is similar to a refrigerator with winged work counters. It consists of a power supply, a magnetron unit and an applicator or "horn" through which the high-frequency waves are focussed on the food. The horn is so situated that the food may be placed in an open "oven" directly beneath it. Two pushbuttons and a 60-sec. timer are utilized to control the cooking time.

The unit has been successfully tested in preparing frozen foods, precooked foods and uncooked foods. Hamburgers were made in 35 sec., cakes baked in 29 sec., and a complete light meal made in less than 60 sec.

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New Hanger Device Allows Light Unit to Be Lowered

THE "Dis-Co-Lo" was developed to bring the fixture with all its component electrical parts down to floor level for servicing and cleaning, The Thompson Electric Co., 1101-11 Power Ave., Cleveland 14, Ohio, developers report.

Operation of the lowering device is simple. A keyed rod about 4 ft. long and ¼ in. in diameter is inserted in a guide tube in the center of the light fixture. The key fits into a slot on the guide tube and when fully inserted and given a clockwise quarter turn, locks the rod into the lower portion of the light fixture and, at the same time, unlatches the two parts of the fixture. The business end of the light fixture can now be lowered by pulling the rod.

The light unit can be lowered as much as 6 ft., and, in so doing, op-

erates coil springs inside the lower member which compensate for the fixture weight and assist in raising the unit to its normal position.

When servicing is completed, the fixture is raised by pushing up on the rod until the fixture seats home in operating position; then a quarter turn in counterclockwise direction locks the two members in place and permits the rod to be removed.

While raising the fixture to the mounted position, the lower member is steered into position by guides inside the canopy of the upper member. The contacts to which the wiring of the lower member is attached are supported on springs and an equalizer, so that when the fixture is in the operating position the lower contacts are held against the upper contacts under 5 to 6 lb. equalized pressure.

The enclosing canopy of the upper member contains the supporting channel, the two upper cup type contacts and the tape supports. The lower member of the hanger contains the operating mechanism, which consists of the four coil-springs, two lower contacts and their spring supports, and the centering and locking stem. The lower member also contains a clamping device for locking the fixture in the lowered position.

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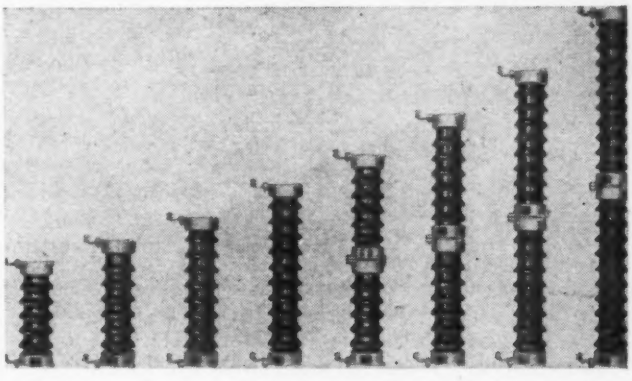
Arresters Use Capacitance Divider in Spark Gap



A COMPLETE LINE of line type lightning arresters in voltage ratings of 20, 25, 30, 37, 40, 50, 60 and 73 kv. has been announced by the Line Material Co., Milwaukee, Wis. These arresters incorporate a capacitance type voltage divider in the spark gap. The voltage divider, which is an integral part of the spark gap, nullifies the effects of stray electrical fields from nearby conductors, which otherwise disturb the voltage distribution in the spark gap of a high voltage arrester, and materially influences the spark-over voltage, the company states.

A simple and effective voltage divider of the capacitance type is obtained in the spark gap by using insulating spacers of a ceramic material having a dielectric constant about 200 times that of the usual ceramic insulators, and is non-aging, mechanically strong, and accurate ceramic, the report continues.

Characteristics reported are low and consistent spark-over unaffected by external conditions, low IR drop, permanent unchanging characteristics, high discharge capacity, tested moisture seals, and a variety of convenient mounting arrangements.

•

Thermostat Covers Conduit Box; Protrudes Under 1 In.

A NEW room type thermostat, model CD109A, which is designed to blend into any room interior, extend less than an inch from the wall, and to be installed on a conventional conduit box, has been announced by Cam-Stat Inc., S. La Cienega, Los Angeles, Calif. All current carrying parts are enclosed within a Bakelite housing.

It is adaptable to either line voltage or low voltage circuits. Current carrying capacity is 1,500 volt-amp., ¼ hp., and 125 volt-amp. pilot duty at 120 through 240 volts a.c. The range is standard 50 to 100 deg. F. with a differential of 2 to 3 degrees. Switching arrangements are SPST break or make on temperature rise, SPDT and independent circuit double throw.

•

Motor-Capacitor Housing Fits Motor-Frame Contour

A GENERAL-UTILITY housing for motor-starting capacitors, accommodating the standard 1⅜- x 3¼-in. unit, has been announced by Aerovox Corp., New Bedford, Mass., jobbers. This housing, made of heavy-gage metal, completely covers and protects the capacitor and terminal assembly, and fits the motor-frame contour. No auxiliary caps or brackets are required.

Magnetic Circuit Breakers Made For In-, Outdoor Use

A NEW LINE of magnetic circuit breakers, available in separate units, as load centers, or as outdoor weather-

proof service equipment, is being introduced by the Metropolitan Device Corp., 1250 Atlantic Ave., Brooklyn 16, N. Y.

The breakers are positive acting, actuated by magnetic means entirely. The units can be reset immediately if electrical conditions permit. The switch handles are marked "on" and "off;" there is no "trip" position.

Breakers are supplied single pole, 10 to 50 amp. Load centers will accommodate up to six circuits. The outdoor service equipment is illustrated.

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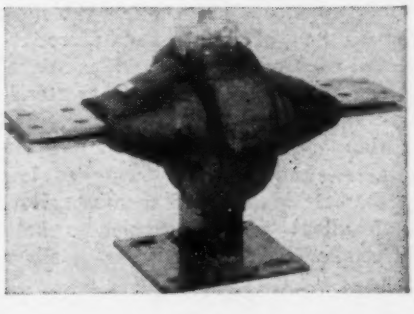
Current Transformers For Accurate Metering

Two new current transformers for meter, relay, and control device applications have been announced by the meter and instrument division, General Electric Co., Schenectady 5, N. Y. The JKL-3 is rated 5,000 volts, 1,200 to 4,000 amp., and is designed to withstand full-wave impulse tests at 60 kv. in accordance with A.S.A. standards. The JKL-4 is rated 8,700 volts, 1,200



to 4,000 amp., and is designed to withstand full-wave impulse tests at 75 kv.

Both the JKL-3 for 2,400- and 4,800-volt lines, and the JKL-4 for 7,200-volt lines, have been designed for accurate metering over the normal current range up to 100 percent of rating, and also for relay operation up to 20 times rated current, the manufacturer reports.

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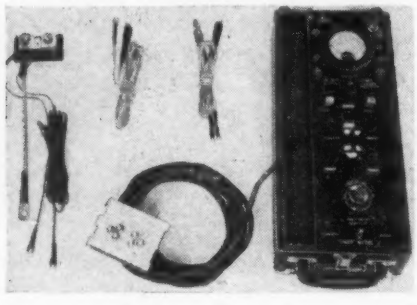
Analyzer Developed for Checking Plane Apparatus

A NEW, portable, electrical aircraft analyzer, used for checking generator voltage, field currents, regulator, gener-



ator relay, instruments and wiring of any single or multi-engine plane, has been announced by Airquipment Co., 2820 Ontario St., Burbank, Calif.

A many-purpose instrument, the analyzer can also be used as a d.c. voltmeter with 30; 300; and a 1,500-volt range, as well as a 30- and 300-amp. ammeter. The complete unit is self contained in a black leather carrying case.

•

Alloys With 35 and 45 Percent Silver Developed

TWO NEW low-temperature silver brazing alloys containing lower silver content are being announced by Handy & Harman, 82 Fulton St., New York 7, N. Y. These are called Easy-Flo 45 and 35 with the figure indicating the percentage of silver contained.

The 45 percent silver alloy contains copper, zinc and cadmium. It melts between 1,120 and 1,145 deg. F. The joints produced between ferrous, nonferrous and dissimilar metals are reported as strong, ductile and leak-tight.

The 35 percent alloy has characteristics quite different from the 45. It has a wider melting range—1,115 to 1,295 deg. F.—and is free flowing at low temperatures for a 35 percent alloy. Both alloys were developed to help offset the recent 20-cent rise in silver costs.

50-Amp. Relay Has 2 Breaks Per Pole; Is D.P.S.T.

A NEW heavy-duty relay having a contact capacity of 50 amp. at 115 volts, a.c., or 24 volts, d.c., has been announced by the Signal Engineering & Mfg. Co., 152 West 14th St., New York 11, N. Y. The unit is of the multiple arm type and has a double-pole, single-throw contact arrangement, with two breaks per pole.

The relay has a rigid cast aluminum frame which is black anodized. The armature is carried on a stainless steel shaft journaled in "oilite" bearings, and can be counterbalanced to minimize effect of shock and vibration. When specified, contacts are of silver or special alloys, according to application requirements.

The company reports that the magnetic circuit provides a high working pressure at the contacts, with a power consumption of less than 3.5 watts on d.c. coil windings, and 8 watts on the a.c. coils.

Coil windings are sealed against moisture and can be supplied high temperature insulations when specified. The 4x4½x2½-in. unit weighs 1¾ lb.

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New Storage Battery Has 1,500 Amp.-Hr. Capacity

BUILT to power the new 30,000-lb. electric industrial ram trucks, a new battery weighing 5 tons and having a capacity of 1,500 amp.-hr. is announced by The Electric Storage Battery Co., Allegheny Ave. & 19th St., Philadelphia 32, Pa. This new battery, designated as the MEH-31, is said to be the largest storage battery ever built for the operation of electric industrial trucks.

The new battery-powered ram trucks are designed to handle 15-ton loads of coiled steel, and when delivered will be used in the tin plate mills of several of the largest steel plants in the country. This tonnage represents twice the load capacity of the largest ram trucks now used in the steel industry. Despite the 100 percent increase in the capacity of these new rams, however, they require only 50 percent more battery capacity to keep them in full-shift operation.

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Hi-Q Trimmer Stable Mechanically, Electrically

AVAILABILITY of a new Hi-Q air capacitor with mechanical and electrical stability is reported by North American Philips Co., Inc., 100 East 42nd St., New York. The new condenser consists of two sets of concentric aluminum cylinders which are moved together or apart along a common longitudinal axis by means of a screw. Rotor and stator are one-piece assemblies and have a low value of inductance.

Because of the design, the new trimmers are reported as mechanically strong and easy to adjust. Less than ½ in. in diameter and 1 7/16 in. in length, the units are useful to beyond 500 megacycles for trimming or tuning. Capacitance range is 3 to 30 mmf. and linear relationship covers 27 mmf. over three full rotations.

Selected settings remain permanent by virtue of a special retention spring. Vibration does not disturb capacitance because a long rotor-bearing sleeve closely hugs a matching central ceramic insulator.

The new trimmer has two solder terminals and is light enough to be mounted directly on connecting leads. The unit was developed in the Philips Laboratories at Eindhoven, Holland.

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Telephonic Attachment Holds Instrument to Ear

A TELEPHONIC DEVICE, which eliminates the use of the hands in holding the instrument and was used extensively

by the Signal Corps during the war, has been announced to industry by Rayem Plastics Products Corp., 1525 East 53rd St., Chicago, Ill.

The attachment enables the user to rest the telephone on the shoulder, freeing the engineer, dispatcher, operator or clerk to use both hands in checking records or taking notes. It consists of a molded piece of plastic and is adaptable for use on cradle-type or older model telephones.